



WWJMRD 2024; 10(10): 17-26

www.wwjmr.com

International Journal

Peer Reviewed Journal

Refereed Journal

Indexed Journal

Impact Factor SJIF 2017:

5.182 2018: 5.51, (ISI) 2020-

2021: 1.361

E-ISSN: 2454-6615

MOLUNO, Shedrack Uwadinisu

Department of

Entrepreneurship,

Faculty of Administration and

Management, Delta State

University of Science and

Technology Ozoro, Delta State.

Nigeria.

EDEWHOR, Vincent

Department of

Entrepreneurship,

Faculty of Administration and

Management, Delta State

University of Science and

Technology Ozoro, Delta State.

Nigeria.

Correspondence:

MOLUNO, Shedrack Uwadinisu

Department of

Entrepreneurship,

Faculty of Administration and

Management, Delta State

University of Science and

Technology Ozoro, Delta State.

Nigeria.

Process Innovation and Employment Generation of Agro-Based Small and Medium Scale Enterprises (SMEs) in Nigeria.

MOLUNO, Shedrack Uwadinisu, EDEWHOR, Vincent

Abstract

The study focuses on process innovation and employment generation of small and medium scale enterprises (SMEs) in the agricultural sector, focusing mainly in the oil palm sector in the Niger Delta region of Nigeria. The research design adopted for the work is the survey method. A sample of 525 respondents were drawn from 20 SMEs in four oil palm clusters, one each from one Local Government Area from the four selected Niger Delta States of Akwa-Ibom, Delta, Imo and Rivers. One research hypothesis was tested in the study applying simple regression with SPSS version 21. The research hypothesis was accepted as against the null hypothesis, indicating that the predictor variable (process innovation) significantly affected the criterion variables of interest (employment generation). The statements of findings and the corresponding statistical results are as follows: Process innovation significantly promoted employment generation of small and medium scale enterprises (SMEs) in the agricultural sector (Oil Palm produce) ($F(1, 523) = 8540.89, p < 0.05$). It is on the strength of the result of this hypothesis that the study concludes that process innovation significantly affected employment generation of SMEs in the agricultural sector, particularly the oil palm sector. In the light of the foregoing conclusion, the following recommendations were made: 1) SMEs in the agricultural sector (Oil Palm produce) should be encouraged by governments and other stakeholders as well as donor agencies to think beyond the basic and traditional processing methods. 2) They should consider and explore improved processes that can help to facilitate continuous improvement in the current product line and the addition of other value-added products within the value chain. 2) SMEs in the agricultural sector (Oil Palm produce) should be encouraged by governments and other stakeholders as well as donor agencies to think beyond their current practice of serving their current segment. They can do this by introducing processes and necessary to redirect their effort and focus to customers articulated and un-served needs in the interim and customers' unarticulated needs in the long-run. This will help them to develop new products for new markets as well as carving out a niche for their organisations.

Keywords: Process Innovation, Employment Generation, SMEs, oil palm

Introduction

1.1 Background to the Study

The trend of entrepreneurial development in Nigeria and in the Niger Delta region in particular since the early 70s has not been encouraging. This may not be unconnected to decades of over dependence on oil and sheer negligence of other productive sectors which the nation's economy once leaned on. This has left the nation in general and the Niger delta region in particular obviously under developed.

Current global economic development points to a hard fact that, nations with close to single source of revenue can hardly make remarkable progress. Similarly, nations that have weak and fragile entrepreneurial foundation are likely to face lingering development challenges. These two reasons to a great extent underscore the enormous development challenges facing Nigeria as is manifest in the Niger Delta region. In the light of the foregoing, there is need for mindful and determined effort by the government to develop economic policies and objectives that would support the fast-tracking of development in the Niger Delta region. The thrust of such renewed economic objective "must be on entrepreneurship development taking

into account its (Nigeria's) large human resource capability and in a manner that makes inclusive yet rapidly accelerated economic growth possible". As it is now, globalization and rapid technological advancements are unavoidably creating new strategic scenarios (Amah, 2007). These have left modern business owner and operators, with no other choice but to step beyond the realm of conventional wisdom to the realm of creativity, invention and most importantly, innovation.

The global business environments are characterized by unprecedented levels of dynamism, complexity and uncertainty (Richter, 1999). This has resulted in chaotic changes. For businesses to remain competitive under this turbulent environment, they must go beyond the basics of simply developing new technologies into new products or services. They should rather consistently strive to develop new models for doing business that will make them to ride in the crest of the wave. The task of developing Nigeria to the point that it can take its rightful place among the comity of nations is enormous and should not be left to government alone. This also applies to the Niger Delta region. Entrepreneurs and entrepreneurship are needed to accelerate the pace of development in this region. Persons who are willing and able to convert a new idea or invention into successful innovation (Schumpeter, 1950) as in Hisrich and Peters (2002) and Hisrich, Peters and Shepherd (2008) are needed. Their enterprises whether small or medium scale should be able to carry force that can cause "creative destruction" across markets and industries as well as simultaneously creating new products and business models. Linux Information Project (2006) sees this creative destruction as "the dynamic process inherent in a free market economy (or one that is largely so) of existing products (i.e., goods and services), production techniques, professions, companies and even entire industries becoming obsolete and dying out as a result of technological advances (including the development of new or improved products, more efficient production techniques and better distribution methods) (Linux Information Project, 2006).

To attain the entrepreneurial level needed to bring about desired change in this region, businesses in this region may urgently need to advance beyond the level of serendipitous innovation to the realm of strategic process innovation. A kind of innovation that is both holistic and systematic in nature, with its focus stretching beyond generating incremental, break through or discontinuous innovation it must be an intentional repeatable process capable of creating significant difference in the value delivered to the stakeholders.

Nigeria is rich in both human and natural resources that are currently underutilized. One key area is the agricultural sector, particularly oil palm production, which has the potential to significantly improve the economy and the lives of Nigerians if properly supported. Historically, oil palm production was a major source of revenue for Nigeria both before and after independence, prior to the oil boom (Usoro, 1974; Utomi, 2009; Ikenobe, 2010). Unfortunately, this once vital industry has been largely overlooked. Current statistics indicate a considerable gap between global demand and available supply of palm oil, which Nigeria could fill through innovative methods. According to estimates by The Oil World (2008) cited by Olukayode (2012), Nigeria needed about 1,722,000 tons of

vegetable oils and fats annually in 2006 to meet the needs of its population of 140 million; with the population now around 220 million, this demand has likely increased. Although the Foundation for Partnership Initiative in Niger Delta (2012) points out that incomplete statistics make it hard to quantify the specific gap, the USDA's analysis indicates a shortfall of approximately 150,000 MT of palm oil each year based on production and import figures. Furthermore, PIND (2012) notes that there may be significant informal imports of palm oil from neighboring West African countries. Ultimately, Omoti (2009) estimates the demand-supply gap for palm oil to be between 500,000 MT and 600,000 MT annually. Given this clear gap in supply, small and medium-sized enterprises in this sector could play a crucial role if they are strategically positioned and leverage process innovation. This study seeks to explore how this potential can be actualised.

1.2 Statement of the Problem

Over the years, government at all levels in Nigeria have made tremendous effort to promote small and medium scale enterprises (SMEs) and entrepreneurship across different sectors including, the agricultural (oil palm produce and other agro and allied products and services) for all round development. Different intervention agencies at different times were put in place to facilitate these SMEs and entrepreneurial development programmes with huge amounts of money equally committed. However, in spite of these significant efforts and contrary to all reasonable expectations, there is apparently no appreciable result. The rate of unemployment is still high and, on the increase, a reasonable number of those seemingly employed are under employed. Correspondingly, the level of poverty is increasing yearly and wealth creation ebbs towards the lowest ever. These are clear indicators many SMEs have failed to achieve the objectives for which they were set-up.

SMEs in the oil palm produce sector are neither insulated nor isolated from this, development. Studies have shown that the oil palm produce sector has not received desired attention since the late 70's and thus lost its position as a significant revenue contributor to the nation's economy. For instance, there is empirical evidence that between 1961 and 1965 world oil palm Production was 1.5 million tons, with Nigeria accounting for at least 43% (Partnership Initiative in Niger Delta, 2008). Conversely, since then oil palm production in Nigeria has been on a steady decline. As recent as 2008, the world oil palm production has amounted to 14.4 million tons, with Nigeria which is one of the largest producers in West Africa, accounting for only 7% (Olagunju, 2008). This may have also contributed to the global demand and supply gap for oil palm produce. It is not known, the role process innovation in SMEs could play in bridging this gap. It is also not certain, the relationship between the proxies of process innovation as and that of employment generation, how the former enhance or promote the latter. Fundamentally, this study therefore seeks to address the problem of entrepreneurial development in Niger-Delta with emphasis on the application of process innovation on small and medium scale enterprises in the oil palm produce sector as a springboard. The focus of this study in the Niger Delta region is necessitated by the recurring youth restiveness and the threat to oil and gas exploration and exploitation activities.

1.3 Objective

The study has a singular objective of determining the extent to which process innovation promotes employment generation in small and medium scale enterprises (SMEs) in the agricultural sector (Oil Palm produce)

1.4. Research Question

Does process innovation promote employment generation in small and medium scale enterprises (SMEs) in the agricultural sector (Oil Palm produce) ?

1.5. Research Hypothesis

Process innovation does not promote employment generation in small and medium scale enterprises (SMEs) in the agricultural sector (Oil Palm produce)

1.6 Significance of the Study.

Study which focuses on process innovation and employment generation of agro-based small and medium scale enterprises (SMES) in Nigeria is of great significance and relevance because it seeks to:

- (i) Add to the body of knowledge of what is known about process innovation, employment generation, and agro-based small and medium scale enterprises (SMES) in Nigeria. This will be seen through the robust and logical presentation of relevant literature which helped in painting a brighter and clearer picture of concepts, constructs, variables and theories in the area of entrepreneurship and innovation as well as the result of the findings.
- (ii) Provide a springboard upon which academics, governments, donor and other intervention agencies can stand to provide support for agro and allied SMEs entrepreneurial process innovation development programmes.

1.7 Scope of the Study.

This study is delimited on the basis of geography, industry and subject matter. On the basis of geography, the study is delimited to agro-based SMSEs in the Niger-Delta region. The subject matter of the study impinges on process innovation and employment generation. On the basis of industry, the study is centered on Small and Medium Scale enterprises in the Oil Palm production value chain.

2.1. Conceptual Framework.

The researcher in this section explores some relevant concept, constructs, variable, facts, theories etc. in relation to the subject matter of discourse and this includes; innovation, types of innovation, employment generation amongst others.

2.1.1. Meaning of Innovation and Classification

The concept of innovation has been defined severally by different authors. Thus, there is a plethora of definition of this concept as there are authors. Wikipidia (2010) notes the term innovation derives from a Latin word "innovation," the noun of action from "inovare" meaning to renew or change.

Stanleigh (n.d.) defines innovation as a collaboration process by which organisations abandon old paradigm and make significant advancement. Shukla (2009) sees innovation as the exploitation of new ideas leading to the

creation of new products, process or services. Shukla (2009) says it is not just the invention of a new idea that is important, but it is actually bringing it to market putting it into practice and exploiting it in a manner that add value or improve quality. Aside from Wikipidia (2010), Stanleigh (n.d.) and Shukla (2009), Invotech (2011) defines innovation as the application of fresh ideas that enables business to do better and compete in the future. Such idea can include any new or significantly improved processes.

From the foregoing definitions of innovation, there are some recurring concepts which pu together, gives a clearer and near-enough picture of the concept of innovation. These are as follows: (i) New ideas (fresh ideas), change or renew and abandoning of old paradigm. (ii) Process (iii) New product, service and process (system) (iv) Invention.

2.1.2 Types of Innovation

There are different types and classes of innovation. The typification and classification varies from one author to the other and their understanding of the concept. For the purpose of this study, Francis and Bessant (2005) & Tidd and Bessant (2009) classification is adopted. In their work Four P's innovation model, they identify four types of innovation namely: product, position, process and paradigm innovations. According to them the innovation that take place in these four Ps varies in degree and can be incremental, radical or strategic. Frugal Innovation is about doing more with less. Entrepreneurs and innovators in emerging markets have to devise low cost strategies to either tap or circumvent institutional complexities and resource limitations to innovate, develop and deliver products and services to low income users with little purchasing power, often at mass scale and arguably in a sustainable manner (Koontz ,2014).

2.1.4. The Four P's of Innovation

The 4P model derived its name after the four innovation viewpoints that are represented in a model: Product, Process, Paradigm, and Position presented by Francis & Bessant (2005) and Tidd & Bessant, (2009). According to the 4P model innovation can be targeted in four main ways:

1. Product – innovation to introduce or improve products
2. Processes – innovation to introduce or improve processes
3. Position – innovation to define or re-define the positioning of the firm or products
4. Paradigm – innovation to define or re-define the dominantParadigm of the firm or the industry.

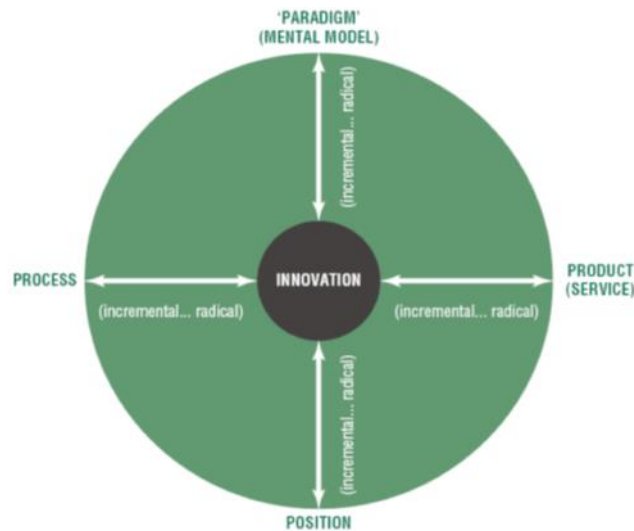


Fig. 2.6. The 4P Innovation Model.

Source: the classification of Tidd, J. & Bessant, J. (2009). *Managing Innovation: Integrating Technological, Market and Organizational Change*, London, Wiley.

As postulated by Tidd and Bessant (2009) in their 4P model above, innovation can either be in product, process, paradigm or place. The emphasis of this study is in process; thus, we shall remain focused on it.

Process Innovation: A process innovation refers to significant changes in production and delivery methods in business organisations. Innovation Policy Platform (2013) defines process innovation as:

the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality or to produce or deliver new or significantly improved products. Process innovations can be distinguished by production methods or delivery methods, or both.

Production methods involve the techniques, equipment and software used to produce goods or services while delivery methods are concerned with the logistics of the firm and include equipment, software and techniques to source inputs, allocate supplies within the firm or deliver final products. The questions raised by Tidd and Bessant (2009) as in (Mabogunje, et al, 2013) whose answers could form basis for determining whether process innovation is in place in an organization or not are;

1. What is the manufacturing/operational setup?
2. What is the logistic setup?
3. What is the competitive strength of these?

Employment Generation

Employment generation remains one of the crucial issues at all times in Nigeria. Over the years, government at different levels in Nigeria remains the highest provider of formal employment. The MSMEs across different sectors of the economy including the agro and allied sector do also contribute significantly. Available statistics shows that in 2022, Nigeria's working population was estimated to exceed 60 million, with a predominant number of men and majority of which were aged between 25 and 44. Of these, the services sector provides the largest employment opportunities compared to other sectors (Sasu, 2023).

MSMSEs in Nigeria have seen appreciable level of increase

in its share of total employment and have helped to address certain unemployment issues. However, in spite of this significant breakthrough and contrary to all reasonable expectation, unemployment is still on the rise. This may not be unconnected to factors such as; rapid population growth, rapidly growing urban labour force due mainly to rural urban migration, inadequate and outdated school curricula at all level of formal education, lack of employable skills (Anyadike, Emeh and Ukah, 2012). Others are rapid expansion of the educational system from primary to tertiary directly leading to increase in the supply of qualified and educated manpower in excess of demand, sustainable power supply / energy crisis, hyper corruption and prebendalism arising from state capture of the ruling elites.

The Finance Act of 2019, implemented in January 2020, exempted businesses with an annual turnover of up to 25 million Nigerian naira (approximately 60,000 U.S. dollars) from income tax, fostering the growth of small enterprises. As of 2021, women represented 0.92 percent of total employment, while men accounted for a higher share at 2.78 percent.

2.2 Theoretical Framework

Theoretical framework as Ezeh (2011) notes is concerned with how a theory or set of theories within the discipline relates to a given study. Borgatti (1999) notes that theoretical framework guides the researcher in determining what things to measure, and what statistical relationships to look out for. MacGriff (2006:1-2) asserts that:

Theoretical framework is a foundation for the parameters, or boundaries, of a study. Once these themes are established, researchers can seek answers to the topical questions they have developed on broad subjects. With a framework, they can resist getting off track by digging into information that has nothing to do with their topic. Often researchers are curious about broad subjects, but with a theoretical framework they can stay tightly within the theme or topic.... A theoretical framework structures the sections of the study that need to be covered.

It is in the light of the foregoing that the researcher sets out to present the innovation theory of entrepreneurship as presented herein below.

2.2.1 Innovative Theory of Entrepreneurship

The innovative theory has gradually gained ground among academics and practitioners in understanding the concept and practice of entrepreneurship and as Rajan (2012) notes; it is one of the most famous theories of entrepreneurship used all around the world. This theory was advanced by a renowned scholar, Joseph Schumpeter, in 1934 and 1991. The theory is the outcome of Schumpeter analysis and critique of the Neo-Classic theory proposed by Marshall, which he concluded was wrong. Schumpeter developed his own thesis but with a paradigm shift from knowledge only to creativity or innovation as a key success factors.

Schumpeter believes that creativity or innovation is the key factor in any entrepreneur's field of specialization. He argued that knowledge can only go a long way in helping an entrepreneur to become successful. However, Schumpeter viewed innovation along with knowledge as the main catalysts of successful entrepreneurship. He believed that creativity was necessary if an entrepreneur was to accumulate a lot of profits in a heavily competitive market (Rajan, 2012:1).

As noted earlier this theory does appear to have a strong theoretical flavour and appeal to academics and practitioners and thus has apparently gained a wider support and popularity over other theories of entrepreneurship. It is on this note that this theory is adopted as the platform and springboard upon which this study is premised.

2.3. Empirical Review

In a survey tagged innovation, firm size, technology intensity, and employment generation in Uruguay, Aboal, Garda, Lanzilotta and Perera (2011) examined the effect of product and process innovation which are both components of strategic innovation on employment growth and employment composition in terms of skills using data from four waves of Manufacturing Firms Innovation Survey (MIS) covering the period 1998-2009 matched with annual Economic Activity Survey (EAS). The result reveals that there is (weaker) evidence that process innovation displaces labor. (Aboal et al, 2011)

In another study in Argentina, the result of the evaluation of the Enterprise Restructuring Support Program (ERP) which aim was to increase the competitiveness of small and medium sized enterprises (SME) by co-financing technical assistance that can be classified as either support for process innovation or support for product innovation, supports employment generation, Castillo, Maffioli, Rojo and Stucchi (2011), in that study found that by supporting process and product innovation-related activities, the program was able to create more and better jobs.

Also in Argentina, another study by Elegalde, Guilodori and Stucchi (2011) which sought to provide evidence about the relationship between innovation and employment in Argentina, the results suggest that product innovations have a positive impact on employment growth while process innovations have no significant impact on employment growth.

Still on innovation and employment generation, Alvarez, Benavente, Campusano and Cueva (2011) in a study targeted shedding light on the relationship between innovation and employment growth in the manufacturing industry in Chile, conclude that:

process innovation is generally not found to be a relevant determinant of employment growth, and that product

innovation is usually positively associated with an expansion in employment. These results seem to be similar regardless of firm size and hold for both low- and high-tech industries.

Monge-Gonzalez, Rodriguez-Alvarez, Hewitt, Orozco and Ruiz (2011) in a study targeted at ascertaining the degree to which innovation by Costa Rican manufacturing firms creates or displaces employment, with particular attention paid to identifying innovation impacts on employment generation by SMEs (small and medium-sized enterprises) found out as follows:

That both product and process innovation are positively related to employment growth. Evidence was found for important differences in impacts by firm size and labor skills. The strategy of in-house innovation is very important as a driver of employment generation. Imported innovation does not seem to have an impact on employment growth. The findings suggest that policies aimed at overcoming challenges faced by Costa Rican firms in becoming more innovative are also very important for generating new employment opportunities in the country.

In a related development, in a study of the effect of innovation on employment in Latin America-(Argentina, Chile, Costa Rica and Uruguay), Crespi and Tacsir (2011), focused their analysis on the manufacturing industry and using the following innovation surveys from the focal countries; Argentina (1998-2001), Chile (1995, 1998, 2001, 2005 and 2007), Costa Rica (2006/2007) and Uruguay (1998-2000, 2001-2003, 2004-2006 and 2007-2009), point to some relationship between innovation and employment generation. They note:

Our results highlight individual process innovation account for a small share of the changes observed in employment, inducing small displacement effects. More importantly, and fundamental for the search for more inclusive growth patterns in the region, we found that product innovations are (with the sole exception of Chile) an important source of firm-level employment growth.

Furthermore, in an extensive survey tagged competition and innovation-driven inclusive growth that cut across over 26,000 manufacturing establishments from 71 countries (both OECD and developing), Dutz, Kessides, O'Connell and Willig (2011), found that: "firms that innovate in products and in processes, and that have attained higher total factor productivity, exhibit higher employment growth relative to non-innovative firms. As part of the finding of that study, Dutz et al (2011) state that:

There is a widespread perception, based largely on casual empiricism rather than careful empirical testing, that innovation-driven growth is not inclusive in that it tends to replace low skilled jobs with jobs characterized by higher levels of qualification. Our findings decidedly reject this view. Indeed, our data suggest that more innovative firms hire a larger share of unskilled workers relative to non-innovative firms. And our econometric estimates indicate that the share of the workforce that is unskilled contributes more to employment growth for firms that innovate (in products and/or processes) than for non-innovators.

Subhan, Mehmood and Sattar (2013) in a study, examines the impact of innovation in small and medium enterprises (SME's) on Economic Development in Pakistan. An econometric model was developed for the study and the period of analysis consists of 1980 to 2012. They applied different secondary data which include: macroeconomic

parameters like; GDP Growth rate per capita, GDP Growth rate, Inflation rate, value of export as percentage of GDP, value of import as percentage of GDP and value of trade balance as percentage of GDP, from both national (Pakistan) and international sources. Subhan et al (2013) note as follows:

one of the significant results is in favour of positive correlation between process innovation and SME's growth. The estimates show that there is positive impact of process innovation on SME growth. With an improvement in the process innovation, there would be an increase in SME growth, which indicates that economic activities would revive in the country.

3.0. Methodology

Issues considered in this section are research design, characteristics of the population, sampling design and procedure data collection method and instrument, reliability and validity of the research instrument (Pilot testing of the instrument) and procedure for data analysis.

3.2 Research Design

The survey method which facilitates a systematic study of the population of the study of this nature was adopted. Questionnaire and structured interview schedule were developed to elicit valid and reliable data for analysis.

3.3 Sources of Data

The data for this study are drawn from both primary and secondary sources. Data relating to the population and sampling frame are from secondary sources, while those elicited from the respondents through the use of questionnaire and interview schedule are from primary sources.

3.4 Population of the Study

The population of this study consists of 20 small and medium scale oil palm production firms in the Niger Delta region of Nigeria. Preliminary investigation by the researcher puts the target population of category of staff of SMEs in oil palm processing within the clusters in the selected states at about 3000 (Three thousand).

3.6 Sample Size

The Bill Goddon (2004) formula for determination of sample size was applied for the study. The formula is stated as follows:

$$SS = \frac{Z^2 \times (P) \times (1-P)}{c^2} \quad (\text{for infinite population})$$

$$NSS = \frac{SS}{1 + \frac{(SS-1)}{N}} \quad (\text{for finite population})$$

Source: Godden, B. (2014) Book of Sampling (Statistics) Sample Size Formulas Williamgodden.com <http://www.mathsfact.com/book-of-sampling-statistics-sample-size-formulas-williamgodden-com/> Retrieved 27/08/2014

This formula helped the researcher to determine the sample size to study without subjectively doing so. Given a population of 3000, "Z" 1.96 or (3.8416), "P" 0.5 and "C" 0.04; the sample size "SS" is 600.25. Detail of the calculation is as follows:

$$SS = \frac{3.8416 \times (0.5) \times (0.5)}{0.0016} = 600.25 \quad (\text{for infinite population}).$$

Applying the "SS" 600.25 as calculated to derive the "NSS" we have a new sample size "NSS" of 536 which is the actual sample size selected for the study. See details of the calculation below:

$$NSS = 600.25 / 1 + \frac{(600.25-1)}{3000} = 600.25 / 1 + \frac{(599.25)}{3000} = 500 \quad (\text{for finite population}).$$

The population of this study as stated earlier is a finite one hence the "NSS" calculated is 500. However, to make provision for poor response and improperly completed copies of the questionnaire, a provision of 0.10 is made thus the actual population that formed basis for the study is 550 (500 x 1.10). This sample size was allocated proportionately to the four clusters in the four selected Niger Delta states using the following formula:

$$N^* / N(n)$$

Where: N* = Population of Oil Palm Clusters in the States (varies across States)

N = Population of the study (3000)

n = Calculated sample size for the study (550).

3.7 Sampling Technique

The systematic sampling technique was applied in the selection of the sampling units. The sampling/skipping interval or Kth term of 5 as calculated below.

$$K = \frac{N}{n}$$

Where: K = Sampling interval (skipping interval)

N = Population

n = Sample size

$$\text{While } \frac{n}{N} = \text{Sampling ratio} = \frac{n}{N}$$

Source: Agbonifoh B.A. and Yomere, G.O. (1999): Research methodology in social sciences and education. Benin City, Centerpiece Consultants.

The sampling interval therefore is: 3000/550 = 5, while the sampling ratio is 550/3000 = 18.3%. The population and sample size are 3000 and 550 respectively.

3.8.1 Validity

Factor analysis was also conducted for each of the subgroups in section in the questionnaire to ascertain the construct and content validity through PCA analysis using SPSS version 21. The construct validity of the instrument is 66.88% and the content validity ranges from 0.68 to 0.89.33%.

3.8.2 Reliability

To ensure the internal consistency of the instrument, the researcher prior to the general administration of the research instrument, administered the instrument to a non-test group. The Cronbach's alpha test was used to estimate the reliability coefficient. Upon analysis, the reliability index of the process innovation and employment scale is 0.972.

3.8.3 Questionnaire Administration / Key Informant Interview

The mode of distribution was by hand through the researchers and other research assistants that were trained for the purpose, since the target population is geographically spread and the mail system in Nigeria today is grossly inadequate to rely on. All completed questionnaire were retrieved by hand as well. The key informant interview was conducted on twenty key informants, one each from the selected firms during the field work phase of the study.

4.1 Data Presentation and Analyses

The quantitative data (data collected through the use of structured questionnaire) were analysed using simple percentages for the demographic section and to address the

research questions.

The qualitative data (those generated from key informant interview) of the twenty key informants, one each from the twenty organisations were analysed using the thematic content analysis. This approach was adopted because in

qualitative research, there is no system for pre-coding, therefore a method of identifying and labeling or coding data needs to be developed such that it is bespoke for each research hence the content analysis applies.

Table 4.1.1 Summary of Questionnaire Issued and Retrieved.

Questionnaire	Copies Issued		Copies Retrieved		Copies Unretrieved		Total Retrieved / Unretrieved	
	No.	%.	No.	%.	No.	%.	No.	%.
Akwalbom State	132	24.0	126	22.9	6	1.09	132	24.0
Delta State	146	26.6	137	25.0	9	1.63	146	26.6
Imo State	137	25.0	130	23.6	8	1.45	137	25.0
Rivers State	135	24.4	132	24.0	2	0.36	135	24.4
Total	550	100	525	95.5	25	4.5	550	100

Source: Moluno S.U. (2016) Survey Questionnaire.

Descriptive Statistics of Process Innovation and Employment Generation

The analysis in this section is on the extent to which respondents agree: that the production process of their organisation is rare; that a rare production process gives an organisation competitive advantage; that their organisation production process is costly to imitate; that competitors can easily find alternative process; that the ability to consistently change their production process could lead to competitive advantage and finally; that their Organisation's production process could create employment in their organization.

The the result on responses to rareness of organization production process shows that; 6 of the respondents representing 1.14% strongly agree that the technology of their organisation is rare, 246 respondents representing 46.8% agree, none of the respondents are undecided, 220 respondents representing 41.9% disagree while the remaining 53 respondents representing 10.1 % strongly disagree.

On the extent to which they agree that rare production process gives an organisation competitive advantage; 182 respondents representing 34.6% strongly agree, 205 respondents representing 39% agree, none of the respondents are undecided, 16 respondents representing 3% disagree while the remaining 122 respondents representing 23.2 % strongly disagree. The researcher also sought to know the extent to which respondents agree that their organisation's production process is costly to imitate; on this, 169 respondents representing 32.2% strongly agree, 290 respondents representing 55.2% agree, none of the respondents are undecided, 20 respondents representing 3.8% disagree while the remaining 46 respondents representing 8.7 % strongly disagree.

On the extent to which they agree that competitors can easily find alternative to their production process, and the response shows that 140 respondents representing 26.6% strongly agree, 162 respondents representing 30.8% agree, none of the respondents are undecided, 125 respondents representing 23.8% disagree while the remaining 98 respondents representing 18.6 % strongly disagree. The response to the question on the extent to which respondents agree that their organisations' ability to consistently change their production process could lead to competitive advantage shows that; 185 respondents representing 35.2% strongly agree, 240 respondents representing 45.7% agree,

none of the respondents are undecided, 60 respondents representing 11.4% disagree while the remaining 40 respondents representing 7.6 % strongly disagree.

Finally in this section, the researchers sought know if the Organisation's production process could create employment in their organization and the response shows that 180 respondents representing 34.3% strongly agree, 235 respondents representing 44.7% agree, none of the respondents are undecided, 70 respondents representing 13.3% disagree while the remaining 40 respondents representing 7.6 % strongly disagree.

4.2 Qualitative Analysis of Process Innovation and Employment Generation

On the nature of respondents' production process, they noted that it is mainly a combination of manual and mechanical. For instance, their boiler depends on wood and waste from palm fruit bunches and improvised metal pot as against electric boilers. The respondents' production processes are similar and, in some case, exactly the same and sometimes procured from the same source and so can create competitive edge. Their production processes can be easily imitated and competitors can easily find alternative. Respondents do not have the willingness or readiness to embark on process change but appears to believe that competitive advantage can come through act of serendipity not necessarily through conscious and concerted effort. Respondents are of the opinion that their present production process could create employment but subject to other factors such as the state of the economy.

4.3 Hypothesis Testing

Process innovation significantly promotes employment generation of small and medium scale enterprises (SMEs) in the agricultural sector (Oil Palm produce).

To test this hypothesis, a simple linear regression analysis was conducted between process innovation and employment generation. The result obtained is presented in table 4.21. below

Table 4.3.1: Regression of Process innovation and the promotion employment generation of small and medium scale enterprises (SMEs) in the agricultural sector (Oil Palm produce).

Model Summary					
	R	R ²	Adj R ²	SEE	
	0.97	0.94	0.94	0.21	
ANOVA					
	SS	Df	MS	F	P
Regression	384.73	1	384.73	8540.89	0.00*
Residual	23.56	523	0.05		
Total	408.29	524			
Variables in the Equation					
	B	Std Error	Beta	t- ratio	P
Constant	0.27	0.03		8.56	0.00
Process innovation	0.19	0.00	0.97	92.42	0.00*

Significance: P < 0.05

a. Dependent Variable: employment creation

b. Predictors: (Constant), process innovation

Source: Moluno S.U. (2024) Survey Questionnaire

5.0 Findings, Conclusion and Recommendations

Table 4.2.1 shows that $F(1, 523) = 8540.89$, $p < 0.05$. This indicates that Process innovation significantly promotes employment generation of small and medium scale enterprises (SMEs) in the agricultural sector. The hypothesis is therefore accepted. Table 1 further shows the adjusted R² value as 0.94. This shows that 94% of variance in employment generation of SMEs in the agricultural sector was due to the impact of process innovation.

The relative degree of association between process innovation and employment generation of SMEs is shown by the Beta (β) weight of 0.97, which indicates that process innovation, is a very strong predictor of employment generation of SMEs in the agricultural sector.

Given the foregoing finding and conclusion the study recommends as follows:

1) SMEs in the agricultural sector (Oil Palm produce) should be encouraged governments at all levels and other stakeholders as well as donor agencies to go beyond the basic and traditional processes to innovative ones 2.) Such processes should be cost saving that in addition guaranty quality products and service. 3) They can focus on no-frill and shoestring-processes that are resource-friendly both to the organisation and their customers.

References

- Aboal, D., Garda, P., Lanzilotta, B., & Perera, M. (2011). Innovation, Firm Size, Technology Intensity, and Employment Generation in Uruguay: The Microeconomic Evidence. Inter-American Development Bank, <http://www.iadb.org>. Retrieved 20/03/13.
- Acs, Z. J., & Audretsch, D.B. (1988). Innovation in Large and Small Firms: An Empirical Analysis. *The American Economic Review*, 78(4) 678-690. <http://www.jstor.org/stable/1811167>.
- Acs, Z. J., & Audretsch, D.B. (1990). *Innovation and Small Firms*. Massachusetts, London: MIT Press.
- Affuah, A. (2009). *Strategic Innovation: New Game Strategies for Competitive Advantage*. New York: Routledge.
- Agbonifoh, B.A. & Yomere G.O. (1999), *Research Methodology for Social Sciences and Education*. Benin City: Centerpiece Consultants.
- Agundu, P.U. (2000). *Finance*. Port Harcourt: Outreach Publication.
- Ajagu, A.N. (2005). *The Entrepreneur: Secrets of getting to the top and staying there happily too*. Lagos: Batcy Media.
- Allonso-Borrego, C, & Callado, M.D. (2011). *Innovation and Job Creation and Destruction*. <https://sites.uclouvain.be/ocon/DP/REL/2002004.pdf>. Assessed on 14/09/13.
- Alvarez, S., & Barney, J. (2001). How entrepreneurial firms can benefit from alliances with large partners. *Academy of Management Journal*, 15(1), 139-148. <https://research.gate.net...> doi:10.5465/AME/20014251563.
- Amah, C. (2007). *Strategic Innovation and Organisational Performance: (Unpublished doctoral*
- Anyadike, N., Emeh, I.E.J. & Ukah F. O. (2012). Entrepreneurship development and employment generation in Nigeria: Problems and prospects. *Universal Journal of Education and General Studies* Vol. 1(4) pp. 088-102, April, 2012 Available online <http://www.universalresearchjournals.org/ujes> Copyright © 2012 Transnational Research Journals
- Balasubrahmanya, M.H, Mathirajan, M & Krishnaswamy K.N. (2008). The Influence of Technological Innovations on the Growth of Manufacturing SMEs. www.cuocient.com/index.php/cl/article/view/co5. Assessed 20/03/13.
- Balasubrahmanya, M.H. (2008). *Growth of Manufacturing SMEs*, Indian Institute of Science, Bangalore, www.nstmis-dst.org/PDF/influenceoftechnology.pdf. Assessed 20/03/13.
- Caballero, A., Torrad, M.P., Becerra, K.O. & Pezza., M.R. (2011). *Innovation and employment: Evidence from Colombian manufacturing firms*. www.ungs.edu.ar/globerics/wp.content.
- Crespi, G. and Tascir, E. (2011). Effect of Innovation on Employment in Latin America. *American Development Bank*. http://mpr.ub.unimuenchen.de/35429/1/MPRA/_paper_35429.pdf. Retrieved 20/03/2013.
- Deb, I. (2010). *Innovation –A driver of Wealth*. www.smeworld.org. Accessed on 19/12/12
- Doblin Research (2012). *The Ten Types of Innovation*. <https://www.doblin.com/tentypes/>
- Dutz, M.A., Kessides, I., O'Connell, S. & Willig, R.D. (2011). *Competition and Innovation- Driven Inclusive Growth*. The World Bank Poverty Reduction and Economic Management

- Network Economic Policy and Debt Department.www.econ.worldbank.org/external/default/main%3FpagePK%3D641.
19. Elejalde, R, Giuliadori, D.&Stucchi, R. (2011). Employment Generation, Firm Size and Innovation Microeconomic Evidence from Argentina.www.ungs.ar/globelics/wp-content.
 20. Foundation for Partnership Imitative in Niger Delta. (2011). A Report on: Oil Palm Value Chain in Nigeria.<file:///C:/Users/-/Desktop/Palm-Oil-Value-Chain-Analysis-1.pdf>.
 21. Gough, J. W. (1969). The Rise of the Entrepreneur. New York: Shocken Books.
 22. Hamel, G. & Prahalad, C.K. (1989). Strategic Intent. Harvard Business Review. 3(67), 63-76.
 23. Hamel, G. & Prahalad, C.K. (1994). Competing for the Future. Boston: Harvard Business School Press.
 24. Harrison, R., Jaumandreu, J., Mairesse, J. & Peters, B. (2014). Does Innovation Stimulate? International Journal of Industrial Organisation, 35(July, 2014), 29-43. www.science-direct.com/science/article/pii/S0167718714000563.
 25. Hisrich R.D. & Peters M.P. (2002). Entrepreneurship. New York: McGraw Hill.
 26. Hisrich R.D., Peters, M.P. & Shepherd.D. (2008). Entrepreneurship. New York: McGraw Hill.
 27. Hossain, M. Simula, H. and Halme, M. (2016). Can frugal go global? Diffusion patterns of frugal innovations. https://www.researchgate.net/publication/300166714_Can_frugal_go_global_Diffusion_patterns_of_frugal_innovations.
 28. Ikenobe, C.E. (2010). Stimulating Real Sector Output through Research and Development: The Nigerian Institute for Oil Palm Research (NIFOR) Experience. http://www.cenbank.org/Out/2012/publications/reports/rsd/efr-2010/Economic_
 29. Inegbenebor, A.U. (2011). Lecture Monograph. University of Benin, Benin City, Nigeria: Unpublished.
 30. Invotech (2011). Innovation. <http://www.invotech.dut.ac.za/innovation> Accessed on 10/12/12.
 31. Jensen, E. (2009). Teaching with poverty in mind. <http://www.ascd.org/publications/books/109074/chapters/Understanding-the-nature-of-poverty.aspx>.
 32. Koontz, D. (2014). The Agile late Majority Has Different Needs. <http://www.101ways.com/the-agile-late-majority-has-different-needs/>
 33. Linux Information Project (2006). Creative Destruction: A Brief Introduction. www.linfo.org/creative_destruction.html.
 34. Makadok, R. (2001). Toward a Synthesis of the Resource-Based View and Dynamic-Capability Views of Rent Creation. Strategic Management Journal; 22 (5), 387-401.
 35. Monge-González, R. Rodríguez, J.A., Hewitt, J. & Orozco, J. (2011). Innovation and Employment Growth in Costa Rica. A Firm-Level Analysis www.ungs.edu.ar/globelics/wp-content/uploads/2011/12/ID.
 36. North Western Ontario Innovation Centre (2015). Types of Innovation: Innovation Spectrum <https://www.nwoinnovation.ca/article/types-of-innovation-355.asp>. Accessed on 30/09/15.
 37. Olukayode, O. (2012). Bridging the Supply-Demand Gap in Palm Oil Business. <http://www.worldstagegroup.com/worldstagenew/index.php?active=page&pgcat=bizdev>.
 38. Olukayode, O. (2012, October 8). Bridging the Supply-Demand Gap in Oil Palm Business. Daily Trust, p.11.
 39. Olukayode, O. (2013, January 30). Bridging the Supply-Demand Gap in Oil Palm Business. Daily Sun. www.sunnewsonline.com/Bridging-the-Supply-Demand-Gap-in-Oil-Palm-Business.
 40. Omoti, U., (2009). Oil palm sector analysis in Nigeria. Main Report, Submitted to the United Nations Industrial Development Organisation (UNIDO), Abuja Nigeria.
 41. Osalor, P.O. (2009). Entrepreneurship and MSME: The Engine for Economic Growth and Wealth Creation. [http://EzineArticle.com/?expert=Peter O Osalor](http://EzineArticle.com/?expert=Peter_O_Osalor). Accessed on 11/02/11.
 42. Osuala, E.C. (2005). Introduction to Research Methodology. Onitsha: African First Publishers.
 43. Ottih, L. O. (1997). Management Information System: An Integrated Approach. Owerri: New African Publishing.
 44. Patrice, F. (2007). Understanding technological innovation: a socio-technical approach. Cheltenham: Edward Elgar Publishing Limited.
 45. Poh-Kam, W. (1999). National Innovation System for Rapid Technological Catch-Up: An Analytical Framework and a Comparative Analysis of Korea, Taiwan and Singapore. www.druid.dk.
 46. Safiriyu, A.M. and Njogo, B.O. (2012). Impact of Small and Medium Scale Enterprises in the Generation of Employment in Lagos State. Kuwait Chapter of Arabian Journal of Business and Management. Vol.1 No.11 July, 2012.
 47. Sasu, D.D. (2023). Employment in Nigeria - statistics & facts. <https://www.statista.com/topics/9043/employment-in-nigeria/>
 48. Shukla, A. (2009). What is Innovation? Why Innovation is important? <http://www.paggu.com/getting-into-roots/what-is-innovation-why-innovation-is-important/>. Accessed on 10/12/12
 49. Simula, H., Hossain, M., & Halme, M. (2015). Frugal and Reverse Innovations - Quo Vadis?. Current Science, 109 (9), 1567-1572.
 50. Stanleigh, M. (nd). Create a New Dimension of Performance with Innovation <https://www.bia.ca/articles/CreateaNewDimensionofPerformancewithInnovation.htm>
 51. Strikeleather, J., (2011). Three Core Types of Innovation. http://www.sourcingfocus.com/site/blogentry/three_core_types_of_innovation/
 52. Subhan, Q.A., Mehmood, M.R., & Sattar, A. (2013). Innovation in Small and Medium Enterprises (SME's) and its impact on Economic Development in Pakistan.
 53. Torjman, S. & Leviten-Reid, E. (2003). Innovation and Poverty Reduction, Canada. The Caledon Institute of Social Policy. www.caledonist.org. Accessed on 10/12/12.
 54. Tushman, M., O'Reilly, C. & Harreld, B. (2013). Leading Strategic Renewal: Proactive Punctuated

- Change through Innovation Streams and Disciplined Learning.[http://www.hbs.edu/faculty/conferences/2013-change-and-sustainability/Documents/Tushman, O'Reilly, Harreld.pdf](http://www.hbs.edu/faculty/conferences/2013-change-and-sustainability/Documents/Tushman,O'Reilly,Harreld.pdf)
55. Ukertor, M. (2009). Building Executive and Strategic Alignment for Performance Optimization in Public Organisations.<http://www.academia.edu/1138140/>.
 56. Walobwa, N. D., Ngugi, J. K. & Chepkulei, B. (2013). Effect of the type of innovation on the growth of small and medium enterprises in Kenya: a case of garment enterprises in Jericho, Nairobi. *European Journal of Management Sciences and Economics*, 1(2), 49-57.
 57. Wikipedia (2011). Entrepreneurship. <http://en.wikipedia/wiki/entrepreneurship>.
 58. Williams, K. and Durrance, J.C. (2008). Social Networks and Social Capital: Rethinking Theory in Community Informatics, *Journal of Community Informatics*,4(3) <http://www.ci-journal.net/index.php>.
 59. World Bank (1995). World Summit for Social Development.www.worldbank.org.
 60. World Bank (1996). Poverty in the Midst of Plenty: The Challenges of Growth with Inclusion. Washington DC: World Bank.
 61. World Bank (2010). Entrepreneurship Snapshot 2010: Measuring the impact of the Financial Crises on New Business Registration. book.google.com.ng/books and www.worldbank.org.
 62. World Bank (2011). Poverty and Inequality Analyses.www.worldbank.org. Accessed on 18/12/12.
 63. Yu, J., Liu, M., Wang, J., Zhu, J., Zhang, M., He, G. & Li H. (2007). SME Development and Poverty Reduction: Case Study of Xiji County, China.cfed.org/knowledge_center/publications/economic. Retrieved 20/04/2013.